Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Infection control after hematopoietic cell transplantation (HCT): percentage of patients who had HCT and were herpes simplex virus seropositive and/or varicella-zoster virus seropositive and prophylaxis was prescribed.

Source(s)

Proposed infection control after HCT measure set: questionnaire, patient selection, measures with specifications, glossary. Arlington Heights (IL): American Society for Blood and Marrow Transplantation; 20 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients who had hematopoietic cell transplantation (HCT) and were herpes simplex virus (HSV) seropositive and/or varicella-zoster virus (VZV) seropositive and prophylaxis was prescribed.

Rationale

In the past decade, modifications in hematopoietic cell transplantation (HCT) management and supportive care have resulted in changes in recommendations for the prevention of infection in HCT patients. These changes are fueled by new antimicrobial agents, increased knowledge of immune reconstitution, and expanded conditioning regimens and patient populations eligible for HCT. Despite these advances, infection is reported as the primary cause of death in 8% of autologous HCT patients and 17% to 20% of allogeneic HCT recipients.

Support (verbatim) from guidelines:

- Herpes simplex virus (HSV). Acyclovir prophylaxis should be offered to all HSV-seropositive allogeneic recipients to prevent HSV reactivation during the early posttransplant period. The standard approach is to begin acyclovir prophylaxis at the start of the conditioning

therapy and continue until engraftment occurs or until mucositis resolves, whichever is longer, or approximately 30 days after HCT. Continued use of acyclovir appears to prevent HSV reactivation disease in patients who received it for varicella-zoster virus (VZV) or cytomegalovirus (CMV) prophylaxis. Routine acyclovir prophylaxis is not indicated for HSV-seronegative HCT recipients, even if the donor is HSV seropositive. Use of ganciclovir prophylaxis for CMV in HCT recipients is sufficient for prevention of HSV because of this drug's in vitro activity against HSV-1 and HSV-2, although ganciclovir has not been approved for use against HSV.
Acyclovir-resistant HSV infection occurs mainly in the setting of low-dose prophylaxis, intermittent treatment, or with HSV-seronegative donors. Foscarnet is the treatment of choice for resistant disease; cidofovir may serve as an alternative. If postengraftment acyclovir prophylaxis is given, experts recommend a sufficiently high dose to prevent the emergence of resistance.

Although valacyclovir is not approved for use in preventing HSV disease among HCT recipients, comparative studies have shown that valacyclovir and acyclovir are equally effective in suppression of HSV after autologous HCT for patients who can tolerate oral medications.

Acyclovir or valacyclovir can be used during phase I (preengraftment) for administration to HSV-seropositive autologous recipients who are likely to experience substantial mucositis from the conditioning regimen.

Note on pediatrics: Acyclovir prophylaxis doses should be modified for use among children. Because of limited published data regarding valacyclovir safety and efficacy among children, no recommendations for the pediatric population can be made.

- Varicella-zoster virus (VZV). Long-term acyclovir prophylaxis to prevent recurrent VZV infection is routinely recommended for the first year after HCT for VZV seropositive allogeneic and autologous HCT recipients. The 1-year regimen of acyclovir is highly effective in reducing the risk of VZV disease during the year of acyclovir administration. Acyclovir prophylaxis may be continued beyond 1 year in allogeneic HCT recipients who have chronic graft-versus-host disease (cGVHD) or require systemic immunosuppression. The optimal duration of prophylaxis is poorly defined in patients with cGVHD, as there appears to be a persistent risk of VZV reactivation disease even if the acyclovir is continued until all systemic immunosuppressive drugs are discontinued and the CD4+ count exceeds 200 cells/μL. Some clinicians advocate continuing acyclovir prophylaxis until 6 months after discontinuation of all systemic immunosuppressive agents.
Note on pediatrics: Recommendations for preventing VZV disease among pediatric or adult HCT recipients are the same, except that appropriate dose adjustments… should be made for pediatric HCT recipients.

Statement (verbatim) from guidelines on gap: Significant changes in the field of HCT since the publication of the original guidelines necessitated this update. These changes include new antimicrobial agents, broader use of reduced-intensity conditioning (RIC), the increasing age of HCT recipients, and more frequent use of alternative donor stem cell sources such as haploidentical donors and umbilical cord blood. Furthermore, as with any field of medicine, published studies continue to add to the evidence regarding supportive medical care. Despite—or perhaps because of—these changes, infections still occur with increased frequency or severity among HCT recipients as a patient population.

During phase I, prolonged neutropenia and breaks in the mucocutaneous barrier result in substantial risk for bacteremia and fungal infections involving Candida species and, as neutropenia continues, Aspergillus species. Additionally, HSV reactivation occurs during this phase. During phase II, infections relate primarily to impaired cell-mediated immunity. The scope and impact of this defect is determined by the extent of GVHD and immunosuppressive therapy for it. Herpesviruses, particularly CMV, are common infectious agents during this period. Other dominant pathogens during this phase include *Pneumocystis jiroveci* and Aspergillus species. During phase III, persons with cGVHD and recipients of alternate-donor allogeneic transplants remain most at risk for infection. Common pathogens include CMV, VZV, and infections with encapsulated bacteria (e.g., *Streptococcus pneumoniae*).

Statement from the American Society for Blood and Marrow Transplantation (ASBMT) Task Force on gap: Changes to the 2009 guidelines from the prior 2000 guidelines include new information on prophylaxis and alternatives. And, HSV and VZV infections are relatively common in HCT recipients. As such, we believe there is a significant gap in adoption of this therapy.

Evidence for Rationale

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Proposed infection control after HCT measure set: questionnaire, patient selection, measures with specifications, glossary. Arlington Heights (IL): American Society for Blood and Marrow Transplantation; 20 p.

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Primary Health Components

Hematopoietic cell transplantation (HCT); herpes simplex virus seropositive (HSV); varicella-zoster virus seropositive (VZV); prophylaxis

Denominator Description

The number of patients in your selection having hematopoietic cell transplantation (HCT) AND herpes simplex virus (HSV) seropositive AND/OR varicella-zoster virus (VZV) seropositive (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

The number of patients in your selection having hematopoietic cell transplantation (HCT) AND herpes simplex virus (HSV) seropositive AND/OR varicella-zoster virus (VZV) seropositive AND prophylaxis was prescribed (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

The Infection Control (IC) measure set was developed by the American Society for Blood and Marrow Transplantation (ASBMT) using a rigorous methodology (adapted from the American Medical Association's Physician Consortium for Performance Improvement [AMA-PCPI] and including field testing) and adapted for use in Practice Improvement Modules (PIMs) by the American Board of Internal Medicine (ABIM).

Evidence for Extent of Measure Testing

Joseph TL. (Executive Director, American Society for Blood and Marrow Transplantation). Personal communication. 2013 Jan 21. 1 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Hospital Inpatient

Hospital Outpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Clinical Practice or Public Health Sites

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

All ages

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Safety

Data Collection for the Measure

Case Finding Period

12 months

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Encounter

Institutionalization

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
The number of patients in your selection having hematopoietic cell transplantation (HCT) AND herpes simplex virus (HSV) seropositive AND/OR varicella-zoster virus seropositive (VZV) seropositive

Note: Patients can be included in the chart abstraction if:

- They have been seen by the practice within the past 12 months; and
- Management decisions regarding care are made primarily by providers in the practice

Select at least 25 of your patients who have had HCT. Refer to the original measure documentation for administrative codes.

Exclusions
None

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
The number of patients in your selection having hematopoietic cell transplantation (HCT) AND herpes simplex virus (HSV) seropositive AND/OR varicella-zoster virus (VZV) seropositive AND prophylaxis was prescribed

Note: This requires documentation in the patient's medical record that prophylaxis was prescribed for patients who are HSV and/or VZV seropositive. Patients at risk for HSV and/or VZV include HSV-seropositive allogeneic and autologous HCT recipients as well as VZV-seropositive allogeneic and autologous HCT recipients. (See the original measure documentation for details.)

Exclusions
None

Numerator Search Strategy

Fixed time period or point in time

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Patients who had HCT and were herpes simplex virus (HSV) seropositive and/or varicella-zoster virus (VZV) seropositive and prophylaxis was prescribed.

Measure Collection Name

Infection Control after Hematopoietic Cell Transplantation Measure Set

Submitter

American Society for Blood and Marrow Transplantation - Professional Association

Developer

American Society for Blood and Marrow Transplantation - Professional Association

Funding Source(s)

American Society for Blood and Marrow Transplantation

Composition of the Group that Developed the Measure

The American Society for Blood and Marrow Transplantation (ASBMT) Education Practice Improvement Modules Task Force:

- Linda Burns, MD (*chair*)
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- Vivek Roy, MD
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Financial Disclosures/Other Potential Conflicts of Interest

Conflicts, if any, are disclosed in accordance with the American Society for Blood and Marrow Transplantation (ASBMT) conflict of interest policy.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2012 Apr

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in February 2017.

Measure Availability

Source not available electronically.

For more information, contact the American Society for Blood and Marrow Transplantation (ASBMT) at 85 W. Algonquin Road, Suite 550, Arlington Heights, IL 60005; Phone: 847-427-0224; Fax: 847-427-9656; Web site: www.asbmt.org; E-mail: mail@asbmt.org.

NQMC Status

This NQMC summary was completed by ECRI Institute on September 24, 2013. The information was verified by the measure developer on October 25, 2013.

The information was reaffirmed by the measure developer on February 8, 2017.

Copyright Statement

Production

Source(s)

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